

Fanshawe College

FIRST: Fanshawe Innovation, Research, Scholarship, Teaching

Documentation (Approvals etc...)

Game Development - Advanced Programming

2014

GDP1 Curriculum Modification for 2015-16

Fanshawe College

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DEGREE AUDIT CHANGE FORM



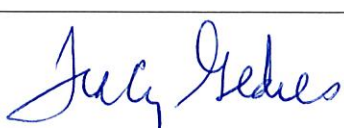

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NOV 28 2014

COURSE OR PROGRAM CURRICULUM "RATIONALE FOR CHANGE"

Program Requiring Changes

Office of the Registrar

Program Title: Game Development – Advanced Programming		
Program Number: GDP1	Date Submitted: 11/18/2014	
Dean responsible for program: David Belford	Chair: Jim Edwards	
Credential Provided: Grad Cert. <input type="checkbox"/> Local Certificate <input type="checkbox"/> Ont. College Certificate <input type="checkbox"/> Diploma <input checked="" type="checkbox"/> Adv. Diploma <input type="checkbox"/> Degree		
Program Intakes: <input checked="" type="checkbox"/> F <input type="checkbox"/> W <input type="checkbox"/> S Other:	Catalogue Year(s) Impacted:	
Residency Requirement: <input checked="" type="checkbox"/> Met or <input type="checkbox"/> Not Met	Date of Last Program Review: Click here to enter a date.	
<i>I have read the reasons for the change and...</i>		
<i>Signature and date</i>		
Dean of Faculty (responsible for program):	<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	 Nov. 26/14
Dean of Faculty (impacted by change):	<input type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	
Dean of Faculty (impacted by change):	<input type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	
Associate Vice President Academic (required for major changes and late DAs):	<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	 12/22/14
Director, Centre for Academic Excellence:	<input checked="" type="checkbox"/> Supports <input type="checkbox"/> Does Not Support	 Dec 21/14
Office of the Registrar:	<input checked="" type="checkbox"/> Supports <input type="checkbox"/> Does Not Support	

Please answer each of the questions below, if applicable. Missing or incomplete information may delay review of the proposed changes.

1.0 Describe proposed change(s). Complete Appendix A (if necessary) and amend SDAR (Refer to Appendix C).

Removal of “Animation 1 & 2”, replaced with “Game Engine Frameworks and Patterns” and “Animation”:

The content in the two “Animation” courses (INFO-6015 & INFO-6021) has changed over the five (5) years of the program, rendering most of the first course, and some of the second course, obsolete. Much of the tedious and exceptionally difficult aspects - the part the students struggled, unnecessarily with - are now elegantly handled by commercial 3rd party libraries (i.e. it is no longer common industry practice to build this type of functionality “from scratch” as we had been doing). The new “Animation” course is a combination of the remaining relevant topics from “Animation 1” and “Animation 2”, combined with the latest industry techniques. ✓

At the same time, some fundamental game programming topics (game engine framework design, software design patterns, C/C++ introduction/review, and software development practices) had been lacking (this from both student and industry feedback). This content was touched on in the 2nd semester INFO-6023 “Game Algorithms & Gems” but a) wasn’t in sufficient depth and b) represented only about 10-20% of the course content. ✓

We had incorrectly assumed that student would already have some knowledge (which wasn’t always the case with non-CPA students), and we underestimated how long it would take to cover the material in sufficient depth for the students to master it (actually utilize what they’ve learned). The earlier this material is covered, the better it can be utilized through the program. ✓

The new 1st semester INFO-6044 “Game Engine Frameworks and Patterns” will fill this need, and will also allow INFO-6023 (“Gems”) to pursue the remaining topics at a much greater depth. The course is the same number of hours as the “Animation 1” course, so there’s no overall change in class time. ✓

Removal of “Audio Programming”, replaced with “Media Fundamentals”:

While the program is clearly “programming” focused, there is a need for the students have at least a basic understanding of the creation and manipulation of game “art” assets (sounds, 3D models, textures, etc.). The goal is not to “make them artists”, but to at least give them enough skills and understanding to do basic manipulation of art assets, as well as communicate effectively with game artists and designers. They will also be able to find and customize their own art assets more effectively. ✓

The GDP program prides itself for teaching the fundamentals of game engine design and development, rather than using and configuring pre-packaged game engine software tools. This is done by having the students create their own engine “from scratch”; industry feedback reinforces that this is precisely what is wanted and expected. However, the students should be aware of existing game engines, if only to glean the general architecture and approach taken in the design.

Lastly, even though the number of hours of the INFO-6029 “Audio Programming” course was reduced, technological advances in sound/audio APIs (Application Programming Interfaces) made the content even more obsolete, to the point that an entire course is no longer warranted. ✓

The new 1st semester INFO-6046 “Media Fundamentals” will include the remaining relevant “Audio Programming” topics, plus an introduction of art asset creation and creation tools, as well as an introduction of commercial game engine use. ✓

2.0 Reason/Rationale for Changes

2.1 The reason for the change is based on:

- ☒ A recent program review
- ☐ College Advisory Committee feedback
- ☒ Program Advisory Committee feedback
- ☒ Student feedback
- ☐ KPI results
- ☐ Accreditation or other regulatory requirements
- ☐ Shared curriculum
- ☒ Trends in the field/industry
- ☐ Other (please describe):

2.2 Does the change support the College’s Strategic Framework (mission, vision, values)?

- ☒ Yes
- ☐ No (If no, please explain)

2.3 What strategic goal(s) does the proposed change support?

- ☐ Goal 1 - Enrolment growth
- ☐ Goal 2 - Flexible delivery options
- ☒ Goal 3 - Premier student experience
- ☐ Goal 4 - Sustainable College life

3.0 Students

3.1 Will the change affect the cost of the program for students?

- ☐ Yes
- ☒ No

3.2 If yes, there will be an additional cost for:

- ☐ Materials (Include details):
- ☐ Equipment (Include details):
- ☐ Other (Please describe):

4.0 Program Learning Outcomes

4.1 Will the proposed change meet the Program Vocational Learning Outcomes? (Complete Appendix B)

☒ Yes

☐ No

4.2 Are there any implications related to progression because of pre-requisite courses (and/or co-requisite courses)?

☒ No

☐ Yes (If yes, please explain)

5.0 Relationships with Other Programs

5.1 Are any of the courses impacted by the change provided by another School (e.g., SLLS, LKSB) and/or delivered at another campus?

☒ No

☐ Yes

5.2 What Schools/Campuses will be impacted by the proposed change?

☐ Tourism and Hospitality

☒ Information Technology

☐ Lawrence Kinlin School of Business

☐ Health Sciences

☐ Human Services

☐ Nursing

☐ Design

☐ Language and Liberal Studies

☐ Contemporary Media

☐ Building Technology

☐ Applied Sciences and Technology

☐ Transportation Technology

☐ Continuing Education

☐ Oxford County Campus

☐ James N. Allan Campus

☐ St. Thomas Campus

5.3 Will the change affect pathway agreements (e.g., bridging, articulations, laddering, advance standing) with other Fanshawe programs and/or other institutions? (Refer to the pathway agreements listed here: <http://transferagreements.fanshawec.ca/>)

☒ No

☐ Yes (If yes, please explain)

5.4 What discussions have been initiated with these programs/institutions regarding the changes?

6.0 Resource Implications of Proposed Changes

6.1 Will the proposed change have staffing implications?

☒ No

☐ Yes (If yes, please explain)

6.2 Will the proposed change impact any of the Enabling areas?

☒ No

☐ Yes (If yes, please explain)

6.3 Will the proposed change affect space and/or technology requirements?

☒ No

☐ Yes (If yes, please explain)

7.0 General College Requirements

7.1 Are changes consistent with Colleges policies/practices?

☒ Yes

☐ No (If no, please explain)

7.2 Indicate:

- i) Total program hours before proposed change: 600
ii) Total program hours after proposed change: 600
iii) Level(s) in which the proposed change(s) occurs: 1 and 2

7.2.1 Are the total program hours consistent with the requirements as listed below?

☒ Yes

☐ No (If no, please explain)

Local Certificate - 300 hours	Ontario College Certificate - 600 hours
Diploma - 1200 to 1400 hours	Advanced Diploma - 1800 to 2000 hours
Graduate Certificate - 600 hours	

7.3 Will the program meet the General Education requirements (Policy 2-B-02) as listed below?

☒ No
☐ Yes

Local Certificate, Ontario College Certificate and Graduate Certificate - none required)	Diploma - 3 required (minimum of 1 must be an elective)	Advanced Diploma - 4 required (minimum of 2 must be electives)
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7.4 Will the program have 25% distinct curriculum to meet the Residency Requirement of 25% credit units? Consider all pathway agreements (e.g., bridging, internal articulations, laddering, advance standing) with other Fanshawe programs and/or other institutions.

☐ No
☒ Yes

Note: In accordance with POLICY NUMBER: 2-B-17 Graduation from Approved College Programs

...to be eligible for any College Credential a student must be enrolled and complete at least 25% of that program's credit units at Fanshawe College, unless stipulated differently by other approving bodies such as the Postsecondary Education Quality Assessment Board (PEQAB).

APPENDIX A: PROPOSED DEGREE AUDIT CHANGES

Course Code	Existing DA Courses	Total Hours	Total Credits	Describe proposed changes	Course Code	Proposed DA Courses	Total Hours	Total Credits
Level 1								
INFO-6028	Graphics 1	60	4		INFO-6028	Graphics 1	60	4
INFO-6015	Animation 1	45	3	Replace	INFO-6044	Games Engine and Frameworks Patterns	45	3
INFO-6016	Network Programming	45	3		INFO-6016	Network Programming	45	3
INFO-6017	Artificial Intelligence	60	4		INFO-6017	Artificial Intelligence	60	4
INFO-6029	Audio Programming	30	2	Replace	INFO-6046	Media Fundamentals	30	2
INFO-6019	Physics & Simulation 1	60	4		INFO-6019	Physics & Simulation 1	60	4
TOTAL		300	20	TOTAL			300	20
Level 2								
INFO-6020	Graphics 2	45	3		INFO-6020	Graphics 2	45	3
INFO-6021	Animation 2	45	3	Replace	INFO-6045	Animation	45	3
INFO-6022	Physics & Simulation 2	60	4		INFO-6022	Physics & Simulation 2	60	4
INFO-6023	Game Algorithms & Gems	60	4		INFO-6023	Game Algorithms & Gems	60	4
INFO-6024	Game Component Integration	45	3		INFO-6024	Game Component Integration	45	3
INFO-6025	Configuration & Deployment	45	3		INFO-6025	Configuration & Deployment	45	3
TOTAL		300	20	TOTAL			300	20
Level 3								
TOTAL				TOTAL			0	0
Level 4								
TOTAL		0	0	TOTAL			0	0
Level 5								
TOTAL		0	0	TOTAL			0	0
Level 6								
TOTAL		0	0	TOTAL			0	0
PROGRAM TOTAL		600	40	PROGRAM TOTAL			600	40

PROGRAM MAPPING (Game Development- Advanced Programming GDP1)

PROGRAM VOCATIONAL LEARNING OUTCOMES	LEVEL ONE						LEVEL TWO						# OF COURSES EVALUATING THE OUTCOME
	INFO-6028-Graphics 1	INFO-6044-Game Engine Frameworks and Patterns	INFO-6016-Network Programming	INFO-6017-Artificial Intelligence	INFO-6046-Media Fundamentals	INFO-6019-Physics & Simulation 1	INFO-6020-Graphics 2	INFO-6045-Animation	INFO-6022-Physics & Simulation 2	INFO-6023-Game Algorithms & Gems	INFO-6024-Game Component Integration	INFO-6025-Configuration & Deployment	
1 - Introductory													
2 - Intermediate													
3 - Advanced													
The graduate has reliably demonstrated the ability to: (Source: MTCU Code 79405)													
1. Design, develop, and present a working game design document for a marketable game or game component				1	1					1	2	1	5
2. Create prototype games and game fragments through the development and use of various software components, along with the use and integration of existing commercial tools and components	2	2		2	2	2	3	2	3	3	3	2	11
3. Evaluate different types of games and game platforms and select the appropriate ones for a particular game strategy				1	1				2	2	1	1	6
4. Using innovative techniques - including digital, verbal and written - present the game design documentation and prototype(s)	1			2	1	1		1			1	1	7
5. Manage the design, production, deployment, and maintenance of game prototypes, fragments, and components		2		2	2		3	2	3	3	3	3	9
6. Use applicable programming and mathematical skills to appropriately and correctly implement the various mathematical, simulation, artificial intelligence, graphics, sound, and other aspects of a game or game component	1	1	2	3	2	2	3	3	3	3	3	1	12
7. Identify, choose, and implement appropriate design and programmatic techniques (algorithmic, threading models, rendering, etc.)	2	2	3	2	1	2	3	3	3	3	3	1	12
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	4	4	2	7	7	4	4	5	5	6	7	7	
V = Vocational Courses E = Essential Employability Skills Courses													
GM = General Education (mandatory) G = General Education (elective)													

NB - Only indicate the outcomes that are Taught & Evaluated (TE or TRE) in a course

PROGRAM COORDINATOR: Michael Feeney Jr.

ACADEMIC CHAIR: Jim Edwards

Date Completed: November 26, 2014

Analysis of Mapping Results:

Degree Audit Report

Catalog: 2015/2016

Program: GDP1

Name: Game Development - Advanced Programming

Department: ITY - Information Technology

Academic Level: PS

CCD: 7 - 2AcadSem/600-700 hrs

Credential: Ontario College Graduate Cert

Grade Scheme: LG2

Major: GDP1 - Game Devel. - Adv Programming

Div: ITY - Information Technology Division

Co-Op Indicator: N/A

Academic Program Requirement

Total Credits: 40.00

Residency Reqmt: 10.00

GPA Requirement: 2.000

Residency Reqmt GPA: 2.000

Minimum Grade: D

Academic Requirement: GDP1.15 Game Development - Advance Programming

Major: GDP1

Grade Scheme: LG2

Minimum GPA: 2.000

Minimum Grade:

Subrequirement: Level 1

Take all of the following Mandatory Courses:

Game Engine Frameworks and Patterns

INFO-6044

INFO-6028

Graphics 1

Total Total GE
Hours Credits

60.00 4.00

INFO-6015

Animation 1

45.00 3.00

INFO-6016

Network Programming

45.00 3.00

INFO-6017

Artificial Intelligence

60.00 4.00

INFO-6046

INFO-6020

Audio Programming

30.00 2.00

INFO-6019

Physics & Simulation 1

60.00 4.00

Subrequirement: Level 2

Take all of the following Mandatory Courses:

Media Fundamentals

INFO-6045

INFO-6020

Graphics 2

Total Total GE
Hours Credits

45.00 3.00

INFO-6021

Animation 2

45.00 3.00

INFO-6022

Physics & Simulation 2

60.00 4.00

INFO-6023

Game Algorithms & Gems

60.00 4.00

INFO-6024

Game Component Integration

45.00 3.00

INFO-6025

Configuration & Deployment

45.00 3.00

Subrequirement: Program Residency

Students Must Complete a Minimum of 10 credits in this program at Fanshawe College to meet the Program Residency requirement and graduate from this program

Approved By Chair/Manager:

Department and Date:

Approved by Dean:

Date:

General Education Approved By(as appropriate):

Date: